



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,902	04/18/2001	Hui Wang	ACMR-001-02US	1040

20872 7590 05/20/2005  
MORRISON & FOERSTER LLP  
425 MARKET STREET  
SAN FRANCISCO, CA 94105-2482

EXAMINER
----------

LEADER, WILLIAM T

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/837,902

**Applicant(s)**

WANG, HUI

**Examiner**

William T. Leader

**Art Unit**

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 110-159 is/are pending in the application.
- 4a) Of the above claim(s) 111-115, 120-138, 140-142 and 149-156 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 110, 116-119, 139, 143-148 and 157-159 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05-09-2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Receipt of the papers filed on February 25, 2005, is acknowledged.

Applicant had previously presented new claims 139-159 for examination. Of these newly presented claims, applicant has identified claims 139, 143-148 and 157-159 as reading on the elected species. Claims 110-159 are pending. Claims 111-115, 120-138, 140-142 and 149-156 are withdrawn from consideration.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 110, 116-119, 139, 143-148 and 157-159 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese patent publication 4-311591.

4. The Japanese patent '591 is directed to electroplating onto a semiconductor wafer. The wafer is mounted on a rotary electrode 3 so that it is rotated about a center-point. Opposing the wafer are a plurality of cylindrical walls 121. Adjacent pairs of these walls form individual cylindrical spaces 123 between them. Electrolyte is flowed through the spaces 123 directly onto the surface of the wafer. An anodic electrode 4 is provided in each of the cylindrical spaces 123. Each anode is isolated from the other anodes by walls 121. Each of the cylindrical spaces 123 is positioned to oppose a different

radial location on the wafer being plated. Electric power is energized between the anode electrodes 4 and rotary electrode 3 to electroplate onto the wafer. A plating film is formed at a first radial location of the wafer and a second portion of the wafer at a second radial location. See the abstract and figures. Thus, all steps recited in independent claims 110 and 139 are disclosed by Japanese patent '591.

5. With respect to claim 116, plating current is supplied to the first and second portions wafer separately by the separate anode segments 4. Claim 143 recites a similar limitation. The term "plating current" as used in claims 116 and 143 is considered to be an electric current of a magnitude sufficient to cause plating on the wafer to occur.

6. Claim 117 recites providing plating current to the first portion of the substrate to prevent deplating after the film reaches the desired thickness on the first portion of the substrate while applying the plating current to the second portion of the substrate. As noted above, plating current is taken to be current which causes plating to occur. Thus, when plating current is applied to the first portion to prevent deplating, since plating current causes plating to occur, plating will take place. Claim 117 is seen as simply requiring that plating current be provided to both first and second portions of the wafer after some thickness has been achieved. This is disclosed by Japanese patent '591. Claim 144 recites a similar limitation. Claim 118 recites a "plating voltage".

This term is interpreted as being a voltage of sufficient magnitude to cause plating to occur. Japanese patent '591 teaches this limitation. Claim 145 recites a similar limitation. Claim 119 recites moving the first portion of the substrate. The only motion of the substrate disclosed by applicant is rotation of the wafer. The Japanese patent moves the wafer in the same manner as applicant. Claim 146 recites a similar limitation.

7. Claim 147 recites flowing electrolyte to the first and second portions of the wafer simultaneously while plating on the second portion of the wafer. Applicant's claims are written in open form using the term comprising. Thus, plating may also occur on the first portion of the wafer as well as the second while electrolyte is flowed simultaneously to the first and second portions. This is disclosed by the Japanese patent. Claim 148 is similar to claims 145. Claim 157 recites limitations similar to claims 139 and 143. Claim 158 is similar to claim 144 while claim 159 is similar to claim 145.

8. Applicant's amendment prompted the new ground(s) of rejection under presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.02(l)(3). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply

is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William Leader  
May 10, 2005



ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700